DOCUMENT RESUME

ED 027 838 HE 000 601

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Illinois Univ., Urbana. Office of Instructional Resources.

Pub Date Feb 69

Note-10p.; Paper presented at annual meeting of American Educational Research Association, Los Angeles, California, February 5-8, 1969.

EDRS Price MF-$0.25 HC-$0.60

Descriptors-*Course Evaluation, *Effective Teaching, *Faculty Evaluation, Higher Education, *Research

Identifiers-Course Evaluation Questionnaire (CEQ)

"Does the good researcher tend to be a good teacher, and vice versa?" University administrators contend that teaching and research are equally important, though students claim that researchers neglect teaching and professors claim that only their research efforts are rewarded. In this study, course and instructor evaluations were defined by scores obtained from analysis of student course evaluations; research productivity was defined by scores derived from a weighted combination of number of books, articles, technical reports, bulletins and book reviews published over a given period. A Course Evaluation Questionnaire (CEQ) was developed. Data were obtained for those instructors who had given the CEQ at least once during Spring 1965-Fall 1966, and had been listed in "Publications of the Faculty" for that period. A sample of 128 subjects included: 49 full professors, 24 associate professors, 35 assistant professors, and 20 instructors--figures proportionately representative of the faculty on the Urbana campus of the University of Illinois. Results showed that student perceptions of the courses were significantly correlated with a measure of research productivity, thus lending support to the assertion that a productive researcher tends to be a good teacher, and vice versa. Future studies are suggested. (JS)

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SOME OBSERVATIONS OF THE RELATIONSHIPS BETWEEN RESEARCH PRODUCTIVITY AND STUDENT EVALUATIONS OF COURSES AND TEACHING Feb 1969

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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HE 000 401

Some Observations on the Relationships Between Research Productivity and Student Evaluations of Courses and Teaching

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Within a university there are three commonly held viewpoints on the relationships between teaching and reseach. Each of these three viewpoints is associated with one of the three principal components of the academic community. Students charge that university professors often neglect teaching for the pursuit of research. University administrators rejoin that, in proper proportions, teaching and research are mutually fructifying. Professors themselves believe that professional recognition and academic advancement are granted primarily on the basis of published research and only secondarily for excellence in teaching. Although there is a paucity of empirical evidence to support either of the first two viewpoints, the focus of this paper will be on the proposition, attributed above to university administrators. This proposition may be phrased as the question: "Does the good researcher tend to be a good teacher, and vice versa?" Whatever the phrasing of the proposition, it is the purpose of this paper to offer some tentative observations about the relationships between student evaluations of courses and instructors with indices of research productivity.

As is usual in the social sciences, there are criteria problems. On what dimensions and with which instruments can one measure and evaluate teaching and research? For example, the evaluation of teaching may be based on student opinions, peer ratings, ratings by departmental chairmen, or even student achievement.

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Likewise, research productivity might be evaluated by bibliographic counts, peer ratings, offices held in professional societies, citation counts, and professional income (Bayer and Folger, 1966). In this study, course and instructor evaluations were defined by those scores obtained from an analysis of student course evaluations. Research productivity was defined by those scores derived from a weighted combination of the number of books, articles, technical reports and bulletins, and book reviews published in a given time period.

Student Course Evaluations

The Course Evaluation Questionnaire (CEQ), developed by Richard E. Spencer of the University of Illinois, was designed to elicit "...opinions about a standardized set of statements relative to standardized aspects of an instructional program, and to develop norms which would enable an instructor to adequately compare his results with results of other instructors (Spencer, 1965, p. 2)." By using the technique of factor analysis, six factors have been identified in the CEQ items. These are: (a) general course attitude (by far the most important factor), (b) method of instruction, (c) course content, (d) interest-attention, (e) instructor, and (f) specific items. In addition, a total score is computed. "The total score is the mean (or average) response over all questionnaire items. This total score is the most reliable score produced on the questionnaire and should be the one on which the greatest importance is placed (Spencer, 1965, p. 4)." The various factors and the total score are highly intercorrelated. For one sample, the CEQ manual indicates a correlation of .69 between the instructor score and the total score (Spencer, 1965). Lower raw scores on the CEQ correspond to more positive or more favorable attitudes.

The CEQ is normally administered at the end of each semester. This is done on a voluntary basis. All results are confidential and are not released to departmental chairmen or students. Several institutions have used the CEQ. A partial list includes the University of Illinois, Temple University, and the University of Oregon.

Research Productivity

In a review of the literature, Bayer and Folger (1966) have summarized the criticisms relating to using bibliographic counts (both weighted and unweighted) as indices of research productivity. Although several systems of assigning weights have been proposed, different combinations of weights have produced little change in the rank orders. Moreover, the assignment of weights is admittedly subjective. Finally, it has been argued that a bibliographic count favors the person who produces a quantity of research over the person concerned with quality of research.

Even though these objections have some validity, it was decided to use a weighted bibliographic count as a criterion of research productivity because (a) the (perhaps) more desirable peer ratings or citation counts are difficult to obtain, (b) it seems obvious that different kinds of publications should be rewarded differently, and (c) the University of Illinois prints an annual listing of faculty publications. This listing, entitled Publications of the Faculty (University Research Board, 1965, 1966), gives the author, co-author(s), title, and bibliographic citation of all books, articles, technical reports and bulletins, book reviews, and doctoral disertations published by the faculty during a calendar year. Also included are the academic ranks of the authors.

An individual's Research Productivity Index (RPI) score was defined as the number of publications multiplied by the appropriate weight for each category of publication. Two systems of weights were used in developing the RPI. Both of these systems were arbitrary. The weights are presented in Table 1.

Procedure

In this study data were obtained for those instructors (a) who had given the CEQ at least once during the period spring semester 1965 through fall semester 1966 and (b) who had been listed in the Publications of the Faculty (University Research Board, 1965, 1966) for that same period. At this point two observations should be interpolated. One, there is always a time lag between the writing (and eventual acceptance) of an article and its publication. However, it was assumed that an instructor's CEQ rating was somewhat constant over time. Thus, if there were several CEQ's for an instructor, the CEQ scores were averaged. Two, if an instructor appeared in both issues of Publications of the Faculty (University Research Board, 1965, 1966) his research productivity was averaged. In all, 128 subjects comprised the sample. These included: 49 full professors, 24 associate professors, 35 assistant professors, and 20 instructors or teaching assistants. In the academic year 1966-1967 there were 876 full professors, 499 associate professors, and 715 assistant professors on the Champaign-Urbana campus of the University of Illinois. The figures for the 1965-1966 year were similar. Hence, the rank order of numbers of subjects in the sample (for the top three academic ranks) is the same as that for the university.

Using two systems of weighting the bibliographic counts (Keys I and II), two RPI's were computed for each member of the sample. Two intercorrelation matrices (containing CEQ Total score, CEQ Instructor score, RPI score, and academic rank) were generated. Rank was scaled as: (a) professor = 5, (b) associate professor = 4,

(c) assistant professor = 3, (d) instructor = 2, (e) teaching assistant = 1. The reader should be reminded that the lower the CEQ score, the more favorable the attitudes.

Results

The intercorrelation matrices are presented in Table 2. With one exception, the correlation between CEQ Instructor score and RPI, the same pattern emerges from both matrices. The negative correlations are artifacts of scaling.

By using both sets of weights there was a significant tendency for more favorable CEQ Total scores to be associated with higher RPI's. However, the correlations were only -.26 and -.24. Because the instructor scale on the CEQ is based upon only eight of the 50 items on the CEQ, the reliability of the instructor scale is less than that of the CEQ Total score. Thus it is not surprising that the correlations between RPI and CEQ Instructor score are smaller than those between RPI and the CEQ Total score. Although (with both keys) more favorable CEQ Instructor scores were associated with higher RPI's, only one of these correlations reached significance (CEQ Instructor score with RPI-Key I). Both keys produced significant correlations between academic rank and RPI, i.e., higher ranks were associated with increased research productivity. Finally, there was a significant tendency for higher academic ranks to be associated with more favorable student attitudes (CEQ Total score) toward courses.

Summary

There may be many dimensions to be considered in the evaluation of teaching. One of these dimensions might be student perceptions of a given course. Logically, these perceptions include evaluations of such factors as the course material, the instructor, and the text. In this study student perceptions of the course, as

measured by the CEQ Total score, were significantly correlated with a measure of research productivity (RPI-Key I and RPI-Key II). As far as could be determined from a scatter plot, the relationship between the CEQ Total score and RPI was linear. With only one key (Key I) were RPI and the CEQ Instructor score significantly linearly correlated (.05 level). However, both correlations of RPI with the CEQ Instructor score like those of CEQ Total score and RPI, were small. The results of this study do lend some support to the assertion that a productive researcher tends to be a good teacher — and vice versa. It may by that the relationships between student course evaluations and research productivity are not simple. Future studies might consider such possibilities as (a) developing an empirically validated set of weights for the RPI, (b) controlling for the proportion of time spent in research, teaching, administration, and public service, (c) conducting separate analyses within academic ranks and/or teaching areas, and (d) testing for a possible interaction between RPI and academic rank — with CEQ Total score as the dependent variable.

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University Research Board, Graduate College, University of Illinois, Publications of the Faculty. Urbana and Chicago: University of Illinois, 1966.

Table 1

Weights Assigned to Publications

Publication	Weight (Key I)	Weight (Key II)
Book	15	9
Book (co-authored)	12	6
Book (edited)	9	4
Article	3	3
Article (co-authored)	2	2
Technical Report	3	3
Technical Report (co-authored)	2	2
Book Review	2	2
Book Review (co-authored)	1	1
Dissertation	5	5

Table 2

Intercorrelations of Total CEQ Score, CEQ Instructor Score, Academic Rank and Research Productivity

(N = 128)

Variables	Weights (Key I)				Weights (Key II)			
	1.	2.	3.	4.	1.	2.	3.	4.
1. Total CEQ		.86**	-.20*	-.26**		.86	-.20*	-.24**
2. CEQ Instructor Score			-.15	-.21*			-.15	-.15
3. Academic Rank				.29**				.40**
4. Research Productivity Index								

* p<.05 (two-tailed test)

** p<.05 (two-tailed test)